Appendix H: Simplified Example of Privatization Economic Analysis

Example

A wastewater utility system being considered for privatization in year 1998 has the following characteristics:

- 3 million gallons per day (MGD) capacity, current throughput is 1.5 MGD, and an expected increase to 2.0 MGD in year 2005.
- The discount rate is 3.8 percent.
- Replacement cost new (RCN) is $30,000,000 replacement cost new less depreciation (RCNLD) is $23,000,000.
- The industry standard for annual renewals and replacement costs is 2.5 percent of RCN.
- Current annual operation and maintenance (O&M) costs are $800,000, and it was determined that only 90 percent of the manufacturers maintenance procedures are being followed because of funding constraints. Current operation and maintenance costs are evaluated and determined to be 60 percent fixed and 40 percent variable based on throughput.
- The facility condition assessment identified physical deficiencies that need to mitigated will cost $2,500,000.
- Changes in the throughput in 2005 will require reconstructing lift stations and some piping at a cost of $2,800,000.
- The industry market analysis indicates a cost for service would be in the range of $60,000 monthly for fixed charges and 1.15 per 1000 gallons for variable costs based on the 1998 throughput.

Prepare a Preliminary Economic Analysis to determine if privatization is feasible.

Analysis

Step 1

Establish adjusted 25-year status quo cash flow. The components of the status quo cash flow are renewals and replacement and adjusted operating costs as presented below.

Renewal and Replacement Costs

- New construction to correct physical deficiencies ($2.5 million) is expected to occur in years 1999 and 2000 (construction years dollars). For MILCON projects (not including unspecified minor military construction), they should only be considered if they have

been included in the POM. A MILCON project in excess of the unspecified minor military construction limits can only be considered a legitimate requirement for the near term if it is already included in the MILCON process.

- New construction to correct functional deficiencies ($2.8 million) for new lift stations and to increase the capacity of some piping prior to the 2005 increase in through put is assumed at 60 percent in year 2003 and 40 percent in year 2004 (construction years dollars).
- Normalized renewal and replacement cost is 2.5 percent of 30 million or 750,000 annually. Normalized renewal and replacement cost will follow the schedule of 1999 at 25 percent, 2000 at 65 percent, and 2001 at 100 percent to prevent double counting of deficiency correction.

Adjusted Operating Costs

- Operating costs are adjusted as to account for insufficient funding and increased load according to 800,000 x 1.1 = 880,000.
- Annual operating cost will increase for year 2005 and beyond according to the following:
  - 0.6 x 880,000 = $528,000 (fixed costs)
  - 0.4 x 880,000 x (2.0 / 1.5) = 470,000 (variable costs)
  - Totaling 998,000 annually

Step 2

Establish adjusted 25-year privatization cash flow. The components of the privatization cash flow are estimated purchase price and estimated service rate costs as presented below.

Estimated Purchase Price

- The estimated purchase price is assumed to be the RCNLD value (23 million) and is amortized over the first 10 years at 6.0 percent interest.

Estimated Service Rate

- The estimated fixed service rate is $60,000 monthly or $780,000 annually
- The estimated variable rate is assumed at (150,000 thousand gallons per day [kgal / day]) *365 (days) * 1.15 ($ / kgal) = $629,625 annually for years 1999 through 2004.
- The estimated variable rate is assumed at (200,000 (kgal / day) *365 (days) * 1.15 ($ / kgal) = $839,500 annually for years 2004 through 2023.

The attached tables present the cash flows and Net Present Value (NPV) calculation.
(Click Here to View Tables)

Conclusion:

Based on the preliminary economic analysis the privatization of the wastewater system would be economically beneficial.